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**Extract concerning PDF from ITSIG Guide, version 3.0
(as of 2000-03-16, not yet approved by ITSIG)**

This document has been provided by the ISO Central Secretariat and is distributed within SC4 *for information only*. Until ISO CS confirms these changes to their requirements for the use of PDF, SC4 projects shall continue to follow the guidelines provided at http://www.iso.ch/itsige/guide/200-Annex-6.html (these are referenced from the Supplementary Directives – see resolution to issue UK-58 as documented in QC N138).

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4 Use of non-revisable documents

4.1 Introduction

Document portability is a key concern when transmitting electronic documents to large audiences in diverse locations. Word processing files are often very voluminous and hard to transmit over wide-area networks. There are also technical incompatibilities which may hamper their use over a variety of computing environments. Adobe has tackled this problem with its Acrobat Portable Document Format (PDF), with a large degree of success. Practically any document which can be printed can also be converted into PDF. However, once converted, the document cannot be easily edited, in contrast with a word processing file, and is therefore *not* suitable for documents subject to revision.

4.2 Portable document format (PDF)

4.2.1 Introduction

At present there are two popular formats that are used for non-revisable documents: PostScript and Acrobat Portable Document Format (PDF). PDF documents are usually more compact than either the original source word processing file or its equivalent PostScript file.

For viewing and printing purposes, a PDF document is superior to a word processing file. PostScript files pose difficulties as an exchange format owing to their large size and possible incompatibility with the recipient's computing environment.

0 to 0 give information on generating, browsing, searching and annotating PDF files together with security, compatibility and system requirements, and may be of particular interest for people wishing to use PDF at the working group level.

4.2.2 Browsing, searching and annotation

A user can browse PDF documents with two main tools: Adobe Acrobat Reader and Adobe Acrobat (formerly known as Acrobat Exchange). The Acrobat Reader is available free of charge and can be downloaded via the web from several web sites, including Adobe's (http://www.adobe.com/products/acrobat/readermain.htm).

The latest version of these tools is version 4.0 and it is recommended that this version be used.

The main functionalities are viewing, navigating, searching and printing files. The Reader can also be easily integrated with web browsers such as Netscape Navigator and Internet Explorer for downloading and viewing PDF documents from the web. However, integrating these applications can impose additional memory requirements. Features such as bookmarks and hyperlinks make it possible to jump directly to a specific section of the document. Various viewing and zooming options allow the user to have a suitable screen presentation of the document. A string search capability allows for simple searching within a document. It is also possible to select a portion of text or even a graphic, copy it into a clipboard and paste it into another tool (e.g. Word) and edit the text.

Adobe Acrobat, for which a license is required, extends the Reader functionalities by allowing the user to add annotations and to perform indexed full-text search across a collection of PDF documents. Adobe Acrobat also contains several functionalities for creators of PDF documents.

Annotation of PDF documents is particularly useful for collecting comments from several sources. It is possible through Adobe Acrobat to import comments from multiple sources and to consolidate them into a single document, while retaining information about the originator and the context of each annotation.

4.2.3 Generating PDF files

4.2.3.1 Generation from word processing files

A PDF file can be generated from a word processing file in several ways, each of which requires additional tools.

The quickest way is via the Acrobat PDFWriter, which is a special print driver supplied with Adobe Acrobat. The user opens the source file with the originating application (e.g. Word), selects PDFWriter as the print device and issues a print command. A PDF file is automatically generated and can be viewed or printed using Acrobat Reader or Adobe Acrobat.

Acrobat Distiller works in the same way [it is a special print driver supplied with Adobe Acrobat; the user opens the source file with the originating application (e.g. Word), selects Distiller as the print device and issues a print command] but is more time consuming. However, a PDF file generated by Distiller is generally more optimized than one generated by PDFWriter. A set of Distiller parameters allows the user to specify how to handle compression, font embedding and image processing. For more information on these parameters and recommendations for the creation of PDF files, see annex C.

Another way involves printing the source document from the originating application onto a file, using an Adobe PostScript print driver. The resulting PostScript file is then processed with Acrobat Distiller which generates a PDF file.

For users of Microsoft Word, the simplest way to generate PDF involves the use of Adobe PDFMaker 4.0 which allows you to create PDF files directly from Microsoft Word 97 or Microsoft PowerPoint 97. With Adobe PDFMaker, you can convert Word files using either PDFWriter or Acrobat Distiller, and you can convert PowerPoint files using Acrobat Distiller.

PDF files created using PDFWriter, Acrobat Distiller and Adobe PDFMaker 4.0 as described above are known as character-based PDF files and are searchable using Acrobat Reader.

4.2.3.2 Generation from other formats

There are several programs available which can produce PDF from other formats. The most popular among them is GhostScript from Aladdin Enterprises (http://www.ghostscript.com), which can convert PostScript into PDF.

Our experience has shown that only specially prepared PostScript files can be converted by GhostScript into a PDF which satisfies the quality requirements for ISO documents.

> For this reason, the use of GhostScript is strongly discouraged for the creation of PDF documents to be used in the ISO system.

4.2.3.3 Generation from TIFF files

PDF files can also be generated from a scanned TIFF file of a paper document using the Acrobat Paper Capture tool. There are two options: Capture without OCR in which only the image is contained in the PDF file (such files are known as image-based PDF files and are not searchable) and Capture with OCR in which recognized text can be displayed or kept hidden within the file for search purposes (such files are image-based PDF files and are searchable although the search precision depends on the OCR precision).

4.2.3.4 Fonts

> The Acrobat PDF format solves to a large extent the problem of font incompatibility between source and target systems. However, for best results it is advisable to avoid the use of "exotic" fonts which may not always be displayed correctly. Although the Acrobat Reader tries to perform a font substitution for unavailable fonts on the target machine, this is not always possible.

Note that special fonts may be embedded in PDF files, but the licensing conditions concerning the distribution of special fonts should be checked with the font creator before distributing the PDF file. Annex C contains a detailed specification for the creation of PDF files and a list of fonts that do not have any special licensing conditions is provided.

4.2.4 Security — encryption and digital signatures

In certain cases, PDF documents need to be protected from unauthorized use. This can be done using the encryption mechanism of Adobe Acrobat. The recipient is able to open a protected PDF document with Acrobat Reader or Adobe Acrobat only after entering a password. It is also possible to prevent the user from printing or performing a copy/paste operation, while allowing the document to be viewed.

Digital signatures in Acrobat store information behind the scenes about the person signing and about the exact state of the document when it was signed. When you view a signed document in Acrobat, you can validate its

signature to confirm the identity of the signer and to verify that the document has not been altered since it was signed. The use of this feature of Acrobat within the ISO system will require a comprehensive public-key infrastructure which is not yet available.

For this reason, it is not recommended at present to use digital signatures in PDF documents to be used in the ISO system.

4.2.5 Acrobat and PDF compatibility

The following table shows the correspondence between the different versions of Acrobat and PDF. A particular version of Acrobat can process all previous versions of PDF (i.e. there is backwards compatibility). However, there is no guarantee that a particular version of Acrobat can process any subsequent version of PDF.

Acrobat version	Native version of PDF	PDF version produced with Distiller in compatibility mode
2.1	1.1	1.0
3.0	1.2	1.1
4.0	1.3	1.2

NOTE   Adobe Distiller 3.0x for Windows is not year 2000 compatible.

4.2.6 System requirements

Acrobat Reader runs on a large variety of computing platforms. These include Microsoft Windows 95, Windows NT 4.0 (with service pack 3 or later), Windows 98, Apple Macintosh, Sun Solaris, HP-UX, IBM AIX, and Linux. A moderately configured PC or Mac is quite sufficient for good performance (see annex D for a recommended hardware configuration).

Adobe Acrobat runs on Microsoft Windows 95, Windows NT 4.0 (with service pack 3 or later), Windows 98 and Apple Macintosh.

Annex C
(informative)

Recommendations for the creation of PDF files

C.1 General recommendations

The aim of these recommendations is to enable the user to create PDF documents with the following characteristics: high-quality; portability; small-size; fully-indexable; searchable.

As a general rule, for simple documents such as small reports, letters, faxes, and working documents, the file size should be optimized at the expense of print quality. For highly structured documents, such as an International Standard, the print quality should be given the highest priority.

> To facilitate the use of PostScript Type 1 (T1) fonts together with TrueType (TT) fonts, it is recommended to install the latest version of the Adobe Type Manager software (ATM 3.02 provided with the Acrobat software or ATM Deluxe 4.0: licensed - USD 100).

C.2 Adobe Acrobat 4.0 recommended configuration

Install, if possible, Adobe PostScript printer drivers which are provided as companion software together with Adobe Acrobat.

Install the "typical" configuration of Adobe Acrobat 4.0 which includes (on Windows NT 4.0) the following components:

— Adobe Acrobat 4.0

— Acrobat Catalog 4.0 (not covered here)

— Acrobat Distiller 4.0

— Acrobat Reader 4.0

— Adobe PDFMaker 4.0 for Word, Excel and PowerPoint

— PDFwriter as a printer

— Distiller as a printer

The following post-installation modifications are recommended.

a) Copy the files specifying the Distiller job options, ''ISOADMIN.joboptions'' and ''ISOPROD.joboptions'', from the ITSIG Guide folder ''Adobe Distiller job options for ISO'' on the SDIS (http://www.iso.ch/sdis) to the Distiller setting folder of your installation (e.g. c:\Programs files\Adobe\Acrobat 4.0\Distllr\Settings).

b) In the default document properties for the ''Acrobat Distiller'' printer (Start → Printers → Acrobat Distiller → Document defaults…") set:

Paper size: <A4>

PostScript Output Option: <Optimize for Portability>

c) In the default document properties for ''Acrobat PDFwriter'' printer (Start → Printers → Acrobat PDFwriter → Document defaults…) set:

Paper size: A4

Graphic resolution: 300dpi

d) PDFMaker 4.0 should be configured to use Acrobat Distiller and to print via the Distiller printer. In this case PDFMaker 4.0 has many configuration options which allow the production of very sophisticated and hyperlinked PDF files from a Word source file. Current experience shows that some options may not be correctly processed for some documents.

For simple documents, PDFwriter or Distiller set up using ''ISOADMIN.joboptions'', the file specifying the Distiller job options available from the ITSIG Guide folder ''Adobe Distiller job options for ISO'' on the SDIS (http://www.iso.ch/sdis), could be used. For complex documents Distiller set up using ''ISOPROD.joboptions'', the file specifying the Distiller job options available from the ITSIG Guide folder ''Adobe Distiller job options for ISO'' on the SDIS (http://www.iso.ch/sdis), is recommended. It is always recommendable to print your PDF document in another computer environment or platform to test its reproducibility.

It is recommended to create 'Optimized' PDF files in ASCII format (see definition G.1).

C.3 Licensing conditions concerning Acrobat Distiller

Important — You cannot set up watched folders [for Acrobat Distiller] as a network service for other users. Every user who creates PDF files must have his or her own Acrobat license. Use watched folders only for converting your own files.

C.4 Recommendations concerning Acrobat Capture

For simple documents, configure Capture to create PDF files that contain the OCR-recognized text plus bitmap images for unrecognized words (small-size PDF files).

For complex documents, configure Capture to create files that contain the original image of the page (300 dpi) plus hidden text for search facilities (large-size PDF files).

As a word of warning, note that OCR products can and will use words that the software deems to have recognized. Hence it is possible that wrongly recognized words will be placed into the PDF file.

C.5 Recommendations concerning the use of fonts

Table C.1 lists recommended Type 1 and TrueType fonts for document creation. These fonts are available in any Acrobat 4.0 installation.

Table A.1 — Recommended fonts for PDF file creation

Type 1 Base 13 fonts in ATM environment	TrueType (MS Windows 3.11)
Times (Regular, Italic, Bold, Bold Italic)	Times New Roman (Regular, Italic, Bold, Bold Italic)
Helvetica (Regular, Oblique, Bold, BoldOblique)	Arial (Regular, Italic, Bold, Bold Italic)
Courier (Regular, Oblique, Bold, BoldOblique)	Courier New (Regular, Italic, Bold, Bold Italic)
Symbol	Symbol

Avoid the use of any other fonts. If additional fonts are needed then try to obtain them from widely used resources, e.g. products like WordPerfect 8, CorelDraw 7, Adobe Illustrator 7, and Adobe Type on call. Be sure to check the license on the fonts and the conditions under which such fonts may be distributed.

Some fonts may be protected for embedding into PDF. An attempt to distil a PostScript file which contains such fonts will cause the following error message :

%%[Error: <fontname> cannot be embedded due to licensing restrictions.]%%